

PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the application of:

Attorney Docket No.: 1101.99US02

Eidesmo et al.

Application No.: Continuation of Application No. 09/763,446

Filed: July 22, 2003

For: METHOD AND APPARATUS FOR DETERMINING THE NATURE OF
SUBTERRANEAN RESERVOIRS

INFORMATION DISCLOSURE STATEMENT

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

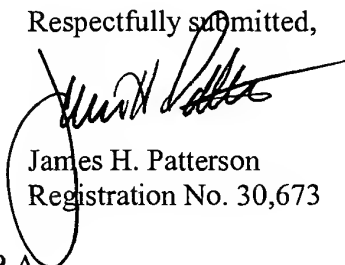
Pursuant to 37 C.F.R. § 1.56, the attention of the Patent and Trademark Office is hereby directed to the references listed on the attached Form PTO-1449. It is respectfully requested that the information be expressly considered during the prosecution of this application, and that the references be made of record therein and appear among the "References Cited" on any patent to issue therefrom.

This Information Disclosure Statement is being filed with the application. No certification or fee is required.

Copies of U.S. Patent Nos. 5,066,916, 6,480,000, 4,489,276, 3,548,299, and 3,398,356, Publication Nos. US2003/0048105 and US2003/0052685, and WO 02/14906, and Cheesman et al., *"On the theory of sea-floor conductivity mapping using transient electromagnetic systems"* are enclosed. All of the other references were cited by or submitted to

the Office in Patent Application No. 09.763,446, filed July 9, 2001, which is relied upon for an earlier filing date under 35 U.S.C. § 120. Thus, copies of these references are not attached. 37 C.F.R. § 1.98(d).

Respectfully submitted,

A handwritten signature in black ink, appearing to read "James H. Patterson", is written over a circular stamp. The stamp contains the text "James H. Patterson" and "Registration No. 30,673".

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Substitute for form 1449/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT <i>(Use as many sheets as necessary)</i>				<i>Complete if Known</i>	
				Application Number	New Application
				Filing Date	July 22, 2003
				First Named Inventor	Eidesmo
				Art Unit	
				Examiner Name	
Sheet	1	of	6	Attorney Docket Number	1101.99US02
U.S. PATENT DOCUMENTS					
EXAMINER INITIAL*	Cite No. ¹	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	
		Number-Kind Code ² (if known)			
		US-2,077,707	04/20/1937	Melton	
		US-2,531,088	11/21/1950	Thompson	
		US-3,052,836	09/04/1962	Postma	
		US-3,398,356	08/20/1968	Still	
		US-3,548,299	12/15/1970	Duroux et al.	
		US-3,806,795	04/23/1974	Morey	
		US-3,836,960	09/17/1974	Gehman et al.	
		US-4,010,413	03/01/1977	Daniel	
		US-4,047,098	09/06/1977	Duroux	
		US-4,079,309	03/14/1978	Seeley	
		US-4,258,321	03/24/1981	Neale, Jr.	
		US-4,258,322	03/24/1981	Rocroi et al.	
		US-4,308,499	12/09/1981	Thierbach et al.	
		US-4,417,210	11/22/1983	Rocroi et al.	
		US-4,446,434	05/01/1984	Sternberg et al.	
		US-4,451,789	05/29/1984	Meador	
		US-4,489,276	12/18/1984	Yu	
		US-4,506,225	03/19/1985	Loveless et al.	
		US-4,547,733	10/15/1985	Thoraval	
FOREIGN PATENT DOCUMENTS					
EXAMINER INITIAL*	Cite No. ¹	Foreign Patent Document	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	T ⁶
		Country Code ³ Number ⁴ Kind Code ⁵ (if known)			
		WO 81/01617	06/11/1981		
		FR 2479992	10/10/1981		
		EP 0087271	08/31/1983		
		GB 2155182	09/18/1985		
		EP 0219234	04/22/1987		
		EP 0512756	11/11/1991		
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<p><small>*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.</small></p> <p><small>¹Applicant's unique citation designation number (optional). ²See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. ³Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁶Applicant is to place a check mark here if English language Translation is attached.</small></p> <p><small>This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450 Alexandria, VA 22313-1450.</small></p>					

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		US-4,594,551	06/10/1986	Cox et al.
		US-4,616,184	10/07/1986	Lee et al.
		US-4,617,518	10/14/1986	Smka
		US-4,633,182	12/30/1986	Dzwinel
		US-4,652,829	03/24/1987	Safinya
		US-4,677,438	06/30/1987	Michiguchi et al.
		US-4,760,340	07/26/1988	Denzau et al.
		US-4,835,474	05/30/1989	Parra et al.
		US-5,025,218	06/18/1991	Ramstedt
		US-5,066,916	11/19/1991	Rau
		US-5,177,445	01/05/1993	Cross
		US-5,192,952	03/09/1993	Johler
		US-5,280,284	01/18/1994	Johler
		US-5,373,443	12/13/1994	Lee et al.
		US-5,400,030	03/21/1995	Duren et al.
		US-H1490	09/05/1995	
		US-5,486,764	01/23/1996	Thompson et al.
		US-H1524	04/02/1996	Thompson et al.
		US-H1561	07/02/1996	Thompson

FOREIGN PATENT DOCUMENTS

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		GB2256715	12/16/1992		
		WO 96/06367	02/29/1996		
		GB 2301902	12/18/1996		
		EP 0814349	12/29/1997		
		WO 98/28638	07/02/1998		
		WO 00/00850	01/06/2000		

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		US-5,563,513	10/08/1996	
		US-5,689,068	11/18/1997	
		US-5,767,679	06/16/1998	Schroder
		US-5,811,973	09/22/1998	Meyer, Jr.
		US-5,841,280	11/24/1998	Yu et al.
		US-5,877,995	03/02/1999	Thompson et al.
		US-5,886,526	03/23/1999	Wu
		US-5,892,361	04/06/1999	Meyer, Jr. et al.
		US-5,955,884	09/21/1999	Payton et al.
		US-6,002,357	12/14/1999	Redfern et al.
		US-6,023,168	02/08/2000	Minerbo
		US-6,060,885	05/09/2000	Tabarovsky et al.
		US-6,157,195	12/05/2000	Vail, III
		US-6,163,155	12/19/2000	Bittar
		US-6,184,685	02/06/2001	Paulk et al.
		US-6,188,221	02/13/2001	Van de Kop et al.
		US-6,188,222	02/13/2001	Seydoux et al.
		US-6,225,806	05/01/2001	Millar et al.
		US-6,246,240	06/12/2001	Vail, III

FOREIGN PATENT DOCUMENTS

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		WO 00/13037	03/09/2000		
		WO 00/13046	03/09/2000		
		WO 00/63718	10/26/2000		
		WO 01/55749	08/21/2001		
		WO 02/14906 (A1)	02/21/2002		

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		Number-Kind Code ² (if known)			
		US-6,339,333	01/15/2002	Kuo	
		US-6,480,000 (B1)	11/12/2002	Kong et al.	
		US-2003/0048105 (A1)	03/13/2003	Ellingsrud et al.	
		US-2003/0052685 (A1)	03/20/2003	Ellingsrud et al.	
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NON PATENT LITERATURE DOCUMENTS					
EXAMINER INITIAL*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published			T ²
		Ellingsrud et al., "How Electromagnetic Sounding Technique Could be Coming to Hydrocarbon E & P", 20 First Break (March 2002).			
		Eidesmo et al., "Sea Bed Logging (SBL), a new method for remote and direct identification of hydrocarbon filled layers in deepwater areas", 20 First Break (March 2002).			
		Kaufman et al., "EM Field of an Electric Dipole on the Surface of a Medium Containing a Thin Resistant Layer", Frequency and Transient Soundings, publ. Elsevier, (1983).			
		Kaufman et al., 1981 Annual Meeting Abstracts: Marine EM Prospecting System, 47 Geophysics 431 (1982).			
		Garg et al., "Synthetic Electric Sounding Surveys Over Known Oil Fields", 49 Geophysics 1959-67 (November 1984).			
		Yuan et al., "The Assessment of Marine Gas Hydrates Through Electrical Remote Sounding: Hydrate Without a BSR?", 27 Geophys. Res. Letts. 204-217 (August 15, 2000).			
		Edwards, "On the Resource evaluation of Marine Gas Hydrate Deposits Using Sea-Floor Transient Electric Dipole-Dipole Methods", 62 Geophysics 63-74 (January 1997).			
		Chave et al., "Some Comments on Seabed Propagation of ULF/ELF Electromagnetic Fields", 25 Radio Science 825-36 (September 1990).			
		MacGregor et al., "Use of Marine Controlled-Source Electromagnetic Sounding for Sub-Basalt Exploration", 48 Geophys. Prosp. 1091-1106 (April 2000).			
		MacGregor et al., "Marine Controlled Source Electromagnetic Sounding: Development of a Regularized Inversion for 2-Dimensional Resistivity Structures", 1 LITHOS Science Report 103-109 (April 1999).			
		MacGregor et al., "The RAMESSES Experiment - III. Controlled-Source Electromagnetic Sounding of the Reykjanes Ridge", 135 Geophys. J. Int. 773-89 (July 1998).			
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<p>*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. ¹Applicant's unique citation designation number (optional). ²Applicant is to place a check mark here if English language Translation is attached.</p> <p>This collection of information is required by 37 CFR 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 120 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450 Alexandria, VA 22313-1450.</p> <p><i>If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.</i></p>					

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		Sinah et al., "Magmatic Processes at Slow Spreading Ridges: Implications of the RAMESSES Experiment at 57 deg. 45'N on the Mid-Atlantic Ridge," 135 Geophys. J. Int. 731-45 (July 1998).			
		Sinah et al., "Evidence for Accumulated Melt Beneath the Slow-Spreading Mid-Atlantic Ridge," 355 Phil. Trans. R. Soc. Lond. A 233-53 (January 1997).			
		Cheesman et al., "On the theory of sea-floor conductivity mapping using transient electromagnetic systems", Geophysics, Vol. 52, No. 2, February 1987, pages 204-217.			
		Greaves et al., "New Dimensions in Geophysics for Reservoir Monitoring", pages 141-150			
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